

TABLE 14.—ASSETS, AT THE BEGINNING OF THE YEAR, RELATED TO EXPENDITURES DURING THE YEAR, FOR THE OLD-AGE, SURVIVORS, AND DISABILITY INSURANCE PROGRAM, BY TRUST FUND, CALENDAR YEARS 1960-77

Calendar year	Ratio of assets, at beginning of year, to expenditures during year		
	Old-age and survivors insurance and disability insurance trust funds, combined	Old-age and survivors insurance trust fund	Disability insurance trust fund
Past experience:			
1960.....	1.86	1.80	3.04
1961.....	1.69	1.63	2.39
1962.....	1.46	1.41	2.06
1963.....	1.28	1.23	1.83
1964.....	1.22	1.18	1.59
1965.....	1.10	1.09	1.21
1966.....	.95	.96	.82
1967.....	.99	1.01	.83
1968.....	1.01	1.03	.83
1969.....	1.03	1.02	1.11
1970.....	1.03	1.01	1.26
1971.....	.99	.94	1.40
1972.....	.93	.88	1.40
Estimated future experience:			
1973.....	.80	.74	1.21
1974.....	.78	.73	1.16
1975.....	.76	.72	1.09
1976.....	.77	.74	1.05
1977.....	.76	.73	.97

The estimates in the tables in this section also include the effect of the provisions in section 222(d) of the Social Security Act authorizing expenditures from the old-age and survivors insurance and disability insurance trust funds for the cost of vocational rehabilitation services furnished to disabled beneficiaries.

Reference has also been made previously to sections 217(g) and 229(b) of the Social Security Act authorizing annual reimbursements from the general fund of the Treasury to the old-age and survivors insurance and disability insurance trust funds for costs of granting noncontributory credits for military service. The estimates shown in the various tables in this section reflect the effect of past and expected future reimbursements under these sections.

#### ACTUARIAL ANALYSIS OF BENEFIT DISBURSEMENTS FROM THE FEDERAL OLD-AGE AND SURVIVORS INSURANCE TRUST FUND WITH RESPECT TO DISABLED BENEFICIARIES

(Specifically required by section 201(c) of the Social Security Act)

Effective January 1957, monthly benefits have been payable from the old-age and survivors insurance trust fund to disabled adult children aged 18 and over—sons and daughters of retired and deceased workers—with respect to disabilities that have continued since childhood. Effective February 1968, reduced monthly benefits have been payable from this trust fund to disabled widows and widowers beginning at age 50.

On December 31, 1972, about 363,000 persons were receiving monthly benefits from the old-age and survivors insurance trust fund with respect to disability. In addition to disabled beneficiaries, this

total includes 29,000 mothers. These mothers—wives under age 65 of retired-worker beneficiaries and widows of deceased insured workers—met all other qualifying requirements and were receiving full-rate (i.e., not reduced for age) benefits solely because they had at least one disabled-child beneficiary in their care. Benefits paid from this trust fund to persons receiving benefits with respect to disability totaled \$409 million in calendar year 1972. Similar figures are presented in table 15 to show the past experience in each of the calendar years 1957-72.

TABLE 15.—BENEFITS PAYABLE FROM THE OLD-AGE AND SURVIVORS INSURANCE TRUST FUND WITH RESPECT TO DISABLED BENEFICIARIES, CALENDAR YEARS 1957-77

[Beneficiaries in thousands; benefit payments in millions]

Calendar year	Disabled beneficiaries, end of year			Amount of benefit payments <sup>1</sup>		
	Total	Children <sup>2</sup>	Widows and widowers	Total	Children <sup>2</sup>	Widows and widowers <sup>3</sup>
<b>Past experience:</b>						
1957.....	34	34	-----	\$7	\$7	-----
1958.....	59	59	-----	23	23	-----
1959.....	94	94	-----	41	41	-----
1960.....	117	117	-----	59	59	-----
1961.....	138	138	-----	74	74	-----
1962.....	163	163	-----	89	89	-----
1963.....	183	183	-----	101	101	-----
1964.....	200	200	-----	113	113	-----
1965.....	214	214	-----	134	134	-----
1966.....	228	228	-----	147	147	-----
1967.....	243	243	-----	163	163	-----
1968.....	275	256	19	212	198	\$14
1969.....	301	270	31	249	214	35
1970.....	320	284	36	301	260	41
1971.....	338	298	40	363	307	56
1972.....	363	317	46	409	343	66
<b>Estimated future experience: <sup>4</sup></b>						
1973.....	394	344	50	513	435	78
1974.....	419	365	54	547	465	82
1975.....	440	383	57	616	525	91
1976.....	460	400	60	654	559	95
1977.....	480	418	62	722	618	104

<sup>1</sup> Beginning in 1966, includes payments for vocational rehabilitation services.

<sup>2</sup> Reflects effect of including certain mothers. (See text.)

<sup>3</sup> Reflects the offsetting effect of lower benefits payable to disabled widows and widowers who continue to receive benefits past age 60 (62, for disabled widowers, prior to 1973) as compared to the higher nondisabled widow's (and widower's) benefits that would otherwise be payable.

<sup>4</sup> Reflects the assumed changes under the automatic increase provisions that were described in the preceding section.

Table 15 also shows the expected future experience in calendar years 1973-77. Total benefit payments from the old-age and survivors insurance trust fund with respect to disabled beneficiaries will increase from \$513 million in calendar year 1973 to \$722 million in calendar year 1977.

In calendar year 1972, benefit payments (including expenditures for vocational rehabilitation services) with respect to disabled persons from the old-age and survivors insurance trust fund and from the disability insurance trust fund (including payments from the latter fund to all dependents of disabled-worker beneficiaries) totaled \$4,930 million, of which \$409 million, or 8.3 percent, represented payments from the old-age and survivors insurance trust fund. Similar figures for all of the calendar years 1957-77 are presented in table 16.

TABLE 16.—BENEFIT PAYMENTS UNDER THE OLD-AGE, SURVIVORS, AND DISABILITY INSURANCE PROGRAM WITH RESPECT TO DISABLED BENEFICIARIES, BY TRUST FUND, CALENDAR YEARS 1957-77

[In millions]

Calendar year	Benefit payments <sup>1</sup> from—			
	Total <sup>1</sup>	Disability insurance trust fund <sup>2</sup>	Old-age and survivors insurance trust fund	
			Amount <sup>3</sup>	As a percentage of total benefit payments with respect to disabled beneficiaries
<b>Past experience:</b>				
1957	\$64	\$57	\$7	11.1
1958	272	249	23	8.5
1959	498	457	41	8.2
1960	627	568	59	9.4
1961	961	887	74	7.7
1962	1,194	1,105	89	7.4
1963	1,311	1,210	101	7.7
1964	1,422	1,309	113	8.0
1965	1,707	1,573	134	7.9
1966	1,932	1,784	147	7.6
1967	2,113	1,950	163	7.7
1968	2,523	2,311	212	8.4
1969	2,806	2,557	249	8.9
1970	3,386	3,085	301	8.9
1971	4,146	3,783	363	8.8
1972	4,930	4,521	409	8.3
<b>Estimated future experience:<sup>4</sup></b>				
1973	6,414	5,901	513	8.0
1974	6,910	6,363	547	7.9
1975	7,785	7,169	616	7.9
1976	8,303	7,649	654	7.9
1977	9,200	8,478	722	7.8

<sup>1</sup> Beginning in 1966, includes payments for vocational rehabilitation services.

<sup>2</sup> Benefit payments to disabled workers and their dependents.

<sup>3</sup> Benefit payments to disabled children aged 18 and over, to certain mothers (see text), and to disabled widows and widowers (see footnote 3, table 15).

<sup>4</sup> Reflects the assumed changes under the automatic increase provisions that were described in the preceding section.

## REPORT OF THE 1971 ADVISORY COUNCIL ON SOCIAL SECURITY

Pursuant to section 706 of the Social Security Act, an Advisory Council on Social Security was appointed in May 1969 and submitted its report on April 5, 1971. The Council made certain recommendations which directly affect the financing methods, the actuarial methodology, and the adequacy of the trust funds. As to these, the Trustees have the responsibility of a careful evaluation, and a transmittal of the Trustees' views, as a part of the Trustees' reports.

The Trustees discharged this responsibility to a large extent in the 1972 reports. However, one of the Council's financing recommendations has now been more completely evaluated.

*Securities Issued by Federally Sponsored Agencies—The Council believes that there is adequate statutory authority for investment of trust fund money in securities issued by federally sponsored agencies. The Council recommends that the Managing Trustee establish a policy of purchasing a portion of new obligations issued by such agencies as investments for the trust funds.*

The Board of Trustees recognizes that statutory authority exists for trust fund investment in securities of federally sponsored agencies;

and that the trust funds might earn a small amount of additional interest if the Council recommendation were followed. The Board is nonetheless opposed to this recommendation under present procedures for Federal agency financing.

The Secretary of Treasury's dual roles as Managing Trustee and as chief financial officer of the Government would create conflicts of interest that do not now exist. Purchase of securities of agencies privately owned but federally sponsored would become an expenditure in the federal accounts, would add to the federal deficit, and would deprive the President and the Congress of their full range of choice in determining priorities. It is possible that these difficulties may be resolved if plans for a federal financing bank materialize, in which case the Board of Trustees will reconsider their position.

### ACTUARIAL STATUS OF THE TRUST FUNDS

#### *Factors Affecting Long-Range Costs*

The estimates of the long-range cost of the old-age, survivors, and disability insurance system are for the law as presently written and do not take into account any possible statutory changes in the future. The cost of these provisions as now enacted in the law will depend on demographic factors and on economic factors. It is also important to remember that any future changes in the law either as to changes in benefits, in the financing provisions, or in the classes of persons covered will affect the actual cost of the program as it develops and such changes would, of course, require new long-range actuarial cost estimates.

Table 17 traces the history of the expenditures from the old-age, survivors, and disability insurance trust funds as a percentage of taxable payroll. Several benefit increases and extensions of coverage are reflected in the expenditures; and several changes in the taxable earnings base are reflected in taxable earnings, as are changes in the earnings level of covered workers. Comparison with table 1 will indicate when changes in the taxable earnings base have occurred, and will also indicate the relationship between (1) the expenditures as a percent of taxable payroll, and (2) the contribution rates paid by employer and employee.

Table 17 indicates an upward trend, except for the period 1966 through 1969, during which expenditures as a percent of taxable payroll held relatively constant.

Demographic factors were responsible for part of the increase shown by table 17. The ratio of persons over 65 (potential beneficiaries) to those 20-64 (potential workers) increased over most of the 30-year period. The relatively large number of children born during the period beginning in about 1945 are now beginning to swell the ranks of worker-contributors, and will slow the increase in this important ratio until about 1990, when the ratio is expected to start a gradual descent. After about 2010, the ratio is expected to rise rather sharply as those born shortly after World War II reach age 65.

The rising level of earnings experienced in the United States almost continuously since 1940 is a factor tending to increase the taxable

payroll, and hence, to hold down the expenditures as a percent of taxable payroll. The several increases in the taxable earnings base have had a similar effect.

TABLE 17.—EXPENDITURES OF THE OLD-AGE, SURVIVORS, AND DISABILITY INSURANCE TRUST FUNDS AS PERCENT OF TAXABLE PAYROLL, FOR SELECTED YEARS 1940-72

Calendar year	Expenditures <sup>1</sup> as a percentage <sup>2</sup> of taxable <sup>3</sup> payroll		
	OASI	DI	OASDI
1940.....	0.19	( <sup>0</sup> )	0.19
1945.....	.48	( <sup>0</sup> )	.48
1950.....	1.17	( <sup>0</sup> )	1.17
1955.....	3.34	( <sup>0</sup> )	3.34
1960.....	5.59	0.30	5.89
1961.....	6.13	.47	6.60
1962.....	6.60	.56	7.16
1963.....	6.84	.59	7.44
1964.....	6.83	.62	7.45
1965.....	7.23	.70	7.93
1966.....	6.24	.64	6.88
1967.....	6.27	.65	6.92
1968.....	6.36	.67	7.03
1969.....	6.31	.69	7.00
1970.....	7.27	.80	8.07
1971.....	8.23	.96	9.19
1972.....	8.04	1.00	9.04

<sup>1</sup> For 1940-54, percentages are based on the sum of payments for benefits and administrative expenses. Starting in 1955, transfers to the railroad retirement account and, starting in 1966, payments for vocational rehabilitation services, are included in expenditures. Beginning in 1966, expenditures are adjusted to exclude payments under section 228 of the Social Security Act to certain noninsured persons aged 72 and over with less than 3 quarters of coverage, costs of which are financed from the general fund of the Treasury.

<sup>2</sup> Percentage takes into account, for 1951 and later, (1) lower contribution rate payable by the self-employed compared with combined employee-employer rate, (2) employee contributions subject to refund, and (3) for 1966 and later, that only the employee contribution is payable on tips taxable as wages.

<sup>3</sup> For 1968-72, percentages are preliminary and subject to revision when a complete tabulation of taxable earnings is available.

<sup>4</sup> The disability insurance program started operating in 1957.

Substantial general benefit increases are responsible for the marked rise in the table 17 result in recent years, as well as in some earlier years. Other increases come from the introduction of disability benefits in 1957, and many minor benefit liberalizations which have taken place over the years. Extension of coverage to new groups of workers has had an upward effect on both trust fund expenditure and taxable earnings, and in most cases has not materially affected the table 17 result.

#### *Long-Range Cost Estimates*

Long-range cost estimates for the old-age, survivors, and disability insurance system presented in this report are computed under dynamic assumptions with respect to the future levels of the benefits and the taxable base. These assumptions are based on the automatic adjustment provisions enacted in 1972. The estimates do not take into account any other possible future modification in either the benefits or the financing.

The 1971 Advisory Council on Social Security recommended that the level-benefit level-earnings assumption used in the past be replaced by dynamic assumptions as to benefit table increases and as to the rate of increase in taxable earnings. These recommendations have now been adopted. The two sets of amendments to the Social Security Act

enacted in 1972 were based on financing schedules that incorporate the dynamic assumptions. Estimates based on such dynamic assumptions basically assume (1) that the provisions automatically adjusting the benefit table in accordance with the Consumer Price Index, and automatically adjusting the taxable earnings base in accordance with the increase in covered earnings per worker, will continue to be a part of the structure of the system, and (2) if Congress were to grant larger benefit table increases, to liberalize the benefits in any other sense, or to hold down the taxable earnings base, it would simultaneously provide additional financing. Tax schedules based on such dynamic methodology provide the financing needed to increase the benefit table in step with the Consumer Price Index, but do not provide financing for benefit table increases in excess of the increase in prices.

Table 18 shows the current cost of the OASDI system (including amounts needed to increase the funds by amounts equivalent to the expected increase in the following year's expenditures) for selected years over the next 75 years, expressed as percent of taxable payroll, in accordance with the dynamic actuarial methodology.

The results in table 18 are based on the same actuarial assumptions as those used in the past with respect to demographic factors. However, with respect to economic factors, it is assumed that:

(a) The benefit table will be adjusted after 1974 to reflect increases in the Consumer Price Index.

(b) Concurrently with adjustments in the benefit table, the taxable wage base and the exempt amount under the earnings test are both adjusted after 1974 to reflect increases in average earnings.

(c) Through 1977 the assumptions are similar to those used in developing the short-range cost estimates, which are presented earlier in this Report.

TABLE 18.—ESTIMATED "CURRENT COST"<sup>1</sup> OF OLD-AGE, SURVIVORS, AND DISABILITY INSURANCE SYSTEM AS PERCENT OF TAXABLE PAYROLL<sup>2</sup> UNDER DYNAMIC ASSUMPTIONS,<sup>3</sup> FOR SELECTED YEARS, 1973-2047

[In percent]

Calendar year	Old-age and survivors insurance	Disability insurance	Total
1973.....	8.59	1.14	9.73
1980.....	8.59	1.23	9.82
1985.....	8.59	1.26	9.85
1990.....	8.68	1.29	9.97
1995.....	8.42	1.34	9.76
2000.....	8.10	1.44	9.54
2005.....	8.06	1.59	9.65
2010.....	8.55	1.71	10.26
2015.....	9.24	1.74	10.98
2020.....	10.04	1.73	11.77
2025.....	10.78	1.72	12.50
2030.....	10.77	1.69	12.46
2035.....	10.72	1.73	12.45
2040.....	10.74	1.76	12.50
2045.....	10.87	1.76	12.63
Average cost <sup>4</sup> .....	9.41	1.54	10.95

<sup>1</sup> Represents the cost as percent of taxable payroll of all expenditures in the year, including amounts needed to maintain the funds at about one year's expenditures.

<sup>2</sup> Payroll is adjusted to take into account the lower contribution rate on self-employment income, on tips, and on multiple-employer "excess wages" as compared with the combined employer-employee rate.

<sup>3</sup> See text for a description of the assumptions.

<sup>4</sup> Represents the arithmetic average of the "current cost" for the 75-year period 1973-2047.

(d) That beyond 1977, the CPI will increase at an annual rate of  $2\frac{3}{4}$  percent, while average earnings will increase at 5 percent.

The results in table 18 are sensitive to the economic assumptions. Illustrations of the effect on these results of varying the earnings increase assumption and the CPI increase assumption can be found in table E in the Appendix. Because of this sensitivity, and as a provision against all the other ways in which the long-range estimates may prove to underestimate the costs, a specific contingency margin has been built into table 18. The amount of this margin is  $\frac{3}{8}$  of 1 percent each year from 1973 until the year 2010.

This contingency margin is such that, if all of the actuarial and economic assumptions were to work out exactly as estimated, a benefit table increase of about  $3\frac{1}{8}$  percent annually up to the year 2010, instead of the  $2\frac{3}{4}$  percent assumed, would not significantly affect the actuarial balance.

Table 19 compares the average long-range cost of the OASDI system under dynamic assumptions with the average rate in the tax schedule in present law. Under the above set of assumptions, the old-age, survivors, and disability insurance system is shown to be underfinanced over the long-range, with a negative actuarial balance of  $-0.32$  percent of taxable payroll. This underfinancing is largely due to the disability insurance program, which is shown to have an actuarial deficit of  $-0.23$  percent of taxable payroll, while the old-age and survivors insurance program is shown as having a negative actuarial balance of  $-0.09$  percent of taxable payroll.

TABLE 19.—ESTIMATED ACTUARIAL BALANCE OF OLD-AGE, SURVIVORS, AND DISABILITY INSURANCE SYSTEM AS PERCENT OF TAXABLE PAYROLL,<sup>1</sup> DYNAMIC ASSUMPTIONS<sup>2</sup>

[In percent]

Item	OASI	DI	Total
Average cost of system.....	9.41	1.54	10.95
Average rate in present tax schedule.....	9.32	1.31	10.63
Actuarial balance.....	-.09	-.23	-.32

<sup>1</sup> Payroll is adjusted to take into account the lower contribution rates on self-employment income, on tips, and on multiple-employer "excess wages" as compared with the combined employer-employee rate.

<sup>2</sup> See text for a description of the assumptions.

As compared with the long-range cost estimates prepared at the time that the 1972 Social Security Amendments were under consideration, the present estimates show a higher cost. The higher cost is attributed mostly to the disability insurance portion of the system. In the last two years the disability rates—that is, the number of allowed claims as a percentage of the insured population—has shown an increase over previous experience. If the higher rates continue, there will be an increase in costs in later years sufficient to require additional financing. Although it is not yet possible to have a firm judgment on whether or not the increases will be permanent, the actuaries are of the opinion that a significant portion of the increase in the rates may not be temporary and that the possibility of higher costs in the long run should now be recognized in the long-range planning of the program. The Trustees agree and have, therefore, shown the cash benefit program to be out of balance for the long run. However, since much more

needs to be known about the change in disability rates before a solid opinion can be made concerning the certainty of higher costs for the later years, the Trustees are not, at this time, recommending an actual change in the contribution rates.

The Social Security Administration has set up a comprehensive study to look into the recent increases in disability rates and the study should be expedited. The additional knowledge that will be gained through this study will be of assistance in the determination of any reallocation or other revision of the contribution schedule for the future.

#### CONCLUSION

The long-range actuarial cost estimates for the old-age, survivors, and disability insurance program have been prepared in accordance with dynamic assumptions as to both benefits and taxable earnings, as is appropriate now that automatic provisions affecting the benefit table and the taxable earnings base have become a part of the law. The estimates currently show an actuarial imbalance of  $-0.32$  percent of taxable payroll, a deficit of about 3 percent of the long-range cost of the program. The deficit, which did not appear in the actuarial estimates prepared for use by the Congress in connection with its consideration of the Social Security Amendments of 1972, arises from two sources.

A small part arises from the sensitivity of the methodology to short-term changes in consumer prices and average covered wages. The rate at which consumer prices have increased since the last benefit increase was granted (for September 1972) makes it now appear that the benefit increase called for as of January 1, 1975, may be over 7 percent, whereas the earlier projections were based on the assumption of a benefit increase amounting to just over 5 percent. The estimates as to the rate of increase in average covered earnings have also been increased, further increasing the estimates of future benefits (since increases in taxable earnings are reflected later in the benefit payments), but increasing the estimates of future trust fund income as well. Variations in the actuarial balance (in either direction) arising from short-term fluctuations in consumer prices and average covered earnings are inherent in the actuarial methodology now employed. Over the 75-year period of the estimates short-term fluctuations could be expected to be in both directions and somewhat offsetting, and relatively small deviations from exact actuarial balance should not call for changes in the contribution schedule.

The larger part of the deficit arises from the projection of disability rates that are significantly higher than those used in previous estimates. A higher rate of disability was used because the 1972 data now available indicate that the rather sharp increase in the rate of disability awards first noted in 1971 was apparently not due to temporary causes. The reasons for the increase in the rate of disability awards are not entirely clear, and an intensive study of disability experience has already been begun to ascertain these reasons, and to determine whether additional financing may eventually be required. The actuarial deficit shown in this Report serves as a notification that an increase in the contribution rate for the disability program is likely to be needed sometime in the future.

The combined old-age and survivors and disability insurance trust funds at the beginning of 1973 (\$42.8 billion) are 80 percent of the estimated combined trust fund expenditures for calendar year 1973 (\$53.7 billion). The 1973 ratio is below that for 1972 due to the substantial benefit increase enacted in 1972. The ratio is projected to decrease slowly, but to remain in the 76-78 percent range for the 1974-77 period. However, in absolute dollar amounts, the trust funds are projected to increase from \$42.8 billion at the end of 1972 to \$58.3 billion at the end of 1977.

The Board of Trustees, in viewing the system beyond the next 5-year period, recognizes the possibility that there may need to be some increase in the rate of contribution to cover higher rates of disability. The need for any extra financing is rather long delayed, however, and can be considered after the studies of disability experience now being undertaken have been completed. The Trustees do not, at this time, propose any changes in financing.



# APPENDIX

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## STATEMENT OF ASSUMPTIONS, METHODOLOGY, AND DETAILS OF LONG-RANGE COST ESTIMATES

(Prepared by Office of the Actuary—Social Security Administration)

The basic assumptions used in the long-range estimates for the old-age, survivors, and disability insurance system are described in this appendix. Also given here are more detailed data in connection with the results of these estimates.

Section A of this appendix provides a description of the demographic aspects of the long-range cost estimates, while section B discusses the economic aspects. These terms are used in a general sense, since it is not entirely possible to fully separate the effect of these two aspects on the cost estimates. By "demographic aspects" we mean those elements dealing with the population and its characteristics. These include the number, age, sex, marital status, retirement, disability, mortality, fertility, employment, and coverage under the system. By "economic aspects" we mean those elements dealing with projected average benefits, and with projected increases in earnings and prices.

### A. DEMOGRAPHIC ASPECTS

This section of the appendix discusses the methods used to estimate the demographic elements of the OASDI cost projections and their effect on the cost estimates.

#### (1) POPULATION

Projections were made of the United States population (including persons overseas covered by the old-age, survivors, and disability insurance program) for future quinquennial years, by 5-year age groups and by sex. The starting point was the population on July 1, 1965, as estimated by the Bureau of the Census from the 1960 Census and from births, deaths, and migration in 1960-65. This population estimate was increased to allow for probable underenumeration in the 1960 Census and adjusted for differences in the geographical areas covered by the estimate of the Bureau of the Census and those covered by the old-age, survivors, and disability insurance system.

Two population projections were prepared and in both it was assumed that mortality rates will decline until the year 2000. In the high-cost projection, mortality rates for the year 2000 are, on the average, about 27 percent lower than those experienced in 1959-61. The mortality is projected to decrease by about 40-55 percent at the younger ages, but with the rates at the older ages showing somewhat smaller improvements. The low-cost projection assumes exactly half of the improvement in mortality used in the high-cost projection.

In the low-cost projection, fertility rates were assumed to decrease slowly until reaching a level in 1985 roughly equivalent to about 83 percent of the average rates prevailing in the period 1960-65. The high-cost fertility rates decrease more rapidly and reach an ultimate rate in 2010 equivalent to about 68 percent of the 1960-65 experience. Both projections assume a small amount of net immigration.

The low-cost projection is based on high fertility and high mortality, while the high-cost projection assumes low fertility and low mortality. This makes the high-cost population relatively much older than the low-cost population, which is reasonable in view of the fact that benefits to aged persons account for more than 80 percent of the cost of the system. Complete details about the population projections are given in *Actuarial Study No. 62*, Social Security Administration.

The high-cost and low-cost population projections were later averaged to obtain a single intermediate-cost projection, which was used as the basis for the long-range cost estimates. This averaging of two previous population projections was used instead of the direct preparation of a single best estimate because it was felt that unless all the underlying assumptions are modified, either procedure would result in essentially the same projection: It is expected that in the next cost projection, a single population projection will be prepared directly, based on the 1970 Census of Population.

#### (2) EMPLOYMENT

Assumptions as to the percentage of the population who have covered employment during a year were made for each age group by sex for each quinquennial year. The estimated average percentages for 1966-70 for males were projected to remain level except for the older ages where they were assumed to decrease (thus recognizing the possibility of higher retirement rates). An increase was assumed for females, except for the very old ages; these increases are higher in the middle ages and are a continuation of trends in the past.

The foregoing projections are consistent with an assumption of a 4½ percent average unemployment rate in the future. A depression lasting several years could substantially increase the cost, but it is believed that any periods of low employment would be of relatively short duration and would have virtually no long-range cost effect.

#### (3) INSURED POPULATION

The term "insured" is used as meaning fully insured, since the number of persons who are currently insured only is relatively small and can be disregarded for long-range cost analysis purposes. The percentages of insured persons by age and sex in various future years are estimated from recent experience and from the projected coverage. It is evident that eventually almost all males in the country will be insured for old-age and survivors benefits; the ultimate percentage for aged males is estimated at 97 percent. For females it is estimated that the corresponding proportion will eventually be 71 percent. This is lower than for males because of the lower participation rates of females in the labor force.

The estimated numbers of persons insured for disability benefits are lower than those insured for old-age and survivor benefits because of the more restrictive insured status provisions for disability benefits. These were also estimated on the basis of recent experience and the projected percentage of persons covered.

#### (4) OLD-AGE AND SURVIVORS INSURANCE BENEFICIARIES

Old-age beneficiaries were estimated from the aged insured population. The proportions, by age and sex, of the insured population that were receiving benefits at the beginning of 1972 were projected to increase, due to changes in the earnings test, as well as to follow the trends in the past—thus, reflecting assumed gradual increases in the retirement rates.

Wives aged 62 and over of male old-age beneficiaries were estimated by using census data and mortality projections. These potential wife beneficiaries, after adjustment for eligibility to benefits on their own account, were assumed to claim benefits as soon as they are eligible, even if this occurred at ages 62-64, when they would have to take reduced benefits. The experience to date indicates that in the vast majority of the cases, such immediate claiming of wife's benefits does occur.

Young wives and children of retired workers were estimated by reference to their ratios to male old-age beneficiaries, as derived from recent actual data and projected according to the population fertility and mortality assumptions.

Child-survivor beneficiaries were obtained from estimates of total paternal orphans in the country in future years. The projected child population by age groups was multiplied by the probability of being a paternal orphan. These probabilities were derived by using distributions of age of fathers at birth of child and death rates consistent with the population projections. The number of paternal orphans was then adjusted to eliminate orphans of uninsured men, to add orphans of insured women and to include the eligible disabled orphans aged 18 and over. For the non-disabled children aged 18-21, a further reduction was made to exclude those not attending school. Mother survivor beneficiaries were estimated by assuming a constant ratio of mothers to children, after excluding those aged 18-21 who were attending school.

To estimate widow beneficiaries the proportions of widows in the female aged population were projected according to mortality assumptions and adjusted for both eligibility for benefits on their own account and for the insured status of their deceased husbands. These uninsured eligible widows were assumed to claim benefits as soon as available even if this occurred at ages 60 to 64, when they would have to take reduced benefits. For ages 50-59, the disabled widow beneficiaries were estimated from the eligible widows by using disability prevalence rates.

It can be observed that the assumed wife and widow beneficiaries consist of the uninsured potential beneficiaries. In actual practice, some of the insured potential beneficiaries also receive a residual benefit consisting of the excess of the potential wife's or widow's benefit over their own old-age benefit. These residual benefits, although not giving rise to additional aged beneficiaries, were considered in the cost of the particular type of dependent or survivor benefit concerned.

The minor category of parent beneficiaries was estimated as a constant proportion of aged persons not eligible for any other benefit. The insignificant effect of the retirement test as it applies to wife's, widow's, and parent's benefits was ignored. No separate estimates were made for benefits to dependent husbands and widowers since their cost is relatively negligible.

Appendix table A shows the estimated number of beneficiaries in the old-age and survivors insurance program.

APPENDIX TABLE A.—OLD-AGE AND SURVIVORS INSURANCE BENEFICIARIES WITH MONTHLY BENEFITS IN CURRENT-PAYMENT STATUS<sup>1</sup>

(In thousands)

Calendar year	Retired workers and dependents			Survivors of deceased workers				Total
	Old-age	Wives <sup>2</sup>	Children	Mothers	Children	Widows <sup>3</sup>	Parents	
Actual data (as of June 30):								
1962.....	9,348	2,464	378	435	1,690	1,778	37	16,130
1963.....	10,037	2,563	416	457	1,776	1,940	37	17,226
1964.....	10,482	2,595	425	467	1,862	2,087	37	17,955
1965.....	10,843	2,601	429	472	1,900	2,228	36	18,509
1966.....	11,461	2,641	506	480	2,224	2,503	35	19,850
1967.....	11,745	2,619	517	490	2,328	2,686	34	20,419
1968.....	12,188	2,635	522	494	2,447	2,843	32	21,161
1969.....	12,582	2,634	523	497	2,559	3,011	31	21,837
1970.....	13,066	2,651	535	514	2,673	3,151	29	22,619
1971.....	13,604	2,673	556	523	2,745	3,287	28	23,416
1972.....	14,181	2,706	578	536	2,847	3,433	27	24,308
Projection (as of June 30):								
1980.....	18,295	2,938	706	553	2,812	3,897	24	29,225
1985.....	20,649	3,023	739	563	2,824	3,792	24	31,614
1990.....	22,892	3,010	768	606	3,017	3,637	23	33,953
1995.....	24,420	2,922	763	628	3,142	3,573	23	35,471
2000.....	25,292	2,850	750	633	3,181	3,680	22	36,408
2005.....	26,209	2,759	782	636	3,202	3,879	21	37,488
2010.....	28,517	2,827	886	655	3,283	4,239	20	40,427
2015.....	32,343	3,080	1,050	687	3,438	4,614	19	45,231
2020.....	36,987	3,535	1,192	725	3,630	5,050	20	51,139
2025.....	41,474	3,998	1,309	759	3,803	5,496	22	56,861
2030.....	44,433	4,097	1,348	791	3,964	5,762	24	60,419
2035.....	45,896	4,218	1,351	826	4,140	6,259	26	62,716
2040.....	47,746	4,316	1,430	866	4,338	6,644	28	65,368
2045.....	50,254	4,518	1,533	909	4,550	6,939	30	68,733

<sup>1</sup> Excluding the effect of the railroad financial interchange provisions.

<sup>2</sup> Including dependent husband beneficiaries.

<sup>3</sup> Including dependent widower beneficiaries.

#### (5) LUMP-SUM DEATH PAYMENTS

The numbers of lump-sum death payments were estimated by multiplying the insured population by the death rates used in the population projections.

#### (6) DISABILITY INSURANCE BENEFICIARIES

The future number of persons receiving monthly disability benefits based on their own earnings was estimated by the application of incidence and termination rates. These rates were developed from the most recent experience data avail-

able from the operations of the disability insurance system. The population insured for disability (by sex and age) was multiplied by the incidence rates to arrive at the number of new cases of disabled workers. These in turn were projected through the use of mortality and recovery rates to obtain the number of beneficiaries.

The assumed incidence rates were based on the estimated actual experience in calendar year 1965, adjusted to reflect some of the recent increases in awarded disability benefits. Since these increases are not yet fully understood, it was not possible to determine what portion of them will turn out to be permanent in nature. It was decided, under the circumstances, that for long-range purposes, the projected costs should reflect about two-thirds of the increases in awards that have already been experienced through the end of calendar year 1972. If in the future the number of awards should continue to increase rapidly, it may be necessary to further revise upward the projections of disabled beneficiaries. On the other hand, it might not be necessary to revise the projection or it might even be possible to revise them downwards if a significant portion of the recent increases turn out to be of a temporary nature.

A more complete knowledge of possible future trends in the number of disabled worker beneficiaries will not be available until the current study of the recent increases is completed.

The mortality and recovery rates are based on the actual experience of the system for the period 1957-67. These experience rates were not modified to take into account any later data. It is possible that the recent increase in the awards may affect the rate at which benefits are terminated, but this will not be known for several years.

The number of child beneficiaries was projected as a proportion of the disabled male beneficiaries allowing for future projected changes in fertility.

The number of wife beneficiaries was projected as a proportion of child beneficiaries after allowing for projected future changes in fertility.

Appendix table B shows the projected number of beneficiaries in the disability insurance program.

## B. ECONOMIC ASPECTS

In this section of the appendix, a detailed discussion of the economic aspects of the OASDI long-range cost estimate is presented. The term "economic aspects" is used here to refer to the effect on the cost estimates of changes in the assumptions regarding ultimate future increases in average earnings in covered employment as well as ultimate future increases in the Consumer Price Index. No attempt has been made to coordinate all the various assumptions regarding earnings and CPI with the unemployment assumption. The latter assumption, which was adopted as part of the central set of assumptions, has been allowed to remain at 4.5 percent for all other combinations of earnings and CPI presented, since the main interest regarding the dynamic projections is on getting an idea of the sensitivity of the cost estimates to earnings and price assumptions.

The automatic adjustment provisions in present law provide that the benefit table be adjusted to keep up with increases in the Consumer Price Index (CPI) and that the taxable earnings base, as well as the exempt amount in the earnings test, be adjusted to keep up with increases in average earnings. This type of automatic procedure has the effect that once a worker retires his benefits will not deteriorate in terms of purchasing power. It has the further effect that a worker before retirement will have his potential benefits increased because of his increase in credited earnings, and in addition, adjusted to maintain purchasing power. This dual increase in potential benefits for future beneficiaries may in combination be above or below increases in earnings; but (as will be shown later) is likely to be, on the average, at about the same level as earnings for the next 20 years and somewhat higher thereafter. When all OASDI beneficiaries are taken together, their average benefits will increase faster than the CPI but not as fast as earnings.

The approximate effect of the automatic procedure on the average benefit for all OASDI beneficiaries is illustrated in appendix table C. Under the specific economic assumption, indicated previously, of an ultimate annual 5 percent increase in earnings and 2½ percent increase in CPI (but with higher increases in both before 1977) the average benefits generated by the automatics decline for about three decades in relation to average earnings, reaching a relative loss of 10 percent by the end of the century.

APPENDIX TABLE B.—DISABILITY INSURANCE BENEFICIARIES WITH MONTHLY BENEFITS  
IN CURRENT-PAYMENT STATUS<sup>1</sup>

[In thousands]

Calendar year	Workers	Wives <sup>2</sup>	Children	Total
Actual data (as of June 30):				
1962	679	133	340	1,152
1963	790	160	432	1,382
1964	862	175	480	1,517
1965	944	187	518	1,649
1966	1,050	209	627	1,886
1967	1,141	226	692	2,059
1968	1,245	244	768	2,257
1969	1,343	254	810	2,407
1970	1,436	271	861	2,568
1971	1,561	293	934	2,788
1972	1,737	327	1,028	3,092
Projection (as of June 30):				
1980	2,448	422	1,319	4,189
1985	2,671	453	1,374	4,498
1990	2,849	470	1,423	4,742
1995	3,091	508	1,493	5,092
2000	3,491	564	1,659	5,714
2005	4,009	644	1,866	6,519
2010	4,481	717	2,048	7,246
2015	4,796	771	2,172	7,739
2020	4,981	801	2,256	8,038
2025	5,073	816	2,300	8,189
2030	5,256	846	2,384	8,486
2035	5,630	906	2,553	9,089
2040	5,963	960	2,703	9,626
2045	6,208	1,000	2,817	10,025

<sup>1</sup> Excluding the effect of the railroad financial interchange provisions.<sup>2</sup> Including dependent husband beneficiaries.APPENDIX TABLE C.—COMPARISON OF OLD-AGE, SURVIVORS, AND DISABILITY INSURANCE "CURRENT-COST"  
PROJECTION UNDER INCREASING-EARNINGS ASSUMPTION AND DEMOGRAPHIC INDEX PROJECTION

Calendar year	"Current cost" under increasing-earnings estimate <sup>1</sup>		"Demographic index" <sup>2</sup>		"Current cost" projection as compared to demographic projection <sup>3</sup>
	In the year	Ratio to cost in 1973	In the year	Ratio to index in 1973	
1973	9.73	1.000	25.21	1.000	1.00
1980	9.60	.987	25.63	1.017	.97
1985	9.46	.972	26.16	1.038	.94
1990	9.39	.965	26.40	1.047	.92
1995	9.01	.926	25.81	1.024	.90
2000	8.66	.890	24.87	.987	.90
2005	8.58	.882	24.31	.964	.91
2010	8.95	.920	24.97	.990	.93
2015	9.58	.985	26.53	1.052	.94
2020	10.27	1.056	28.42	1.127	.94
2025	10.91	1.121	30.40	1.206	.93
2030	10.88	1.118	30.35	1.204	.93
2035	10.86	1.116	30.18	1.197	.94
2040	10.90	1.120	30.13	1.195	.94
2045	11.01	1.132	30.32	1.203	.94

<sup>1</sup> Expressed as percent of taxable payroll based on projected ultimate annual increases of 5 percent in earnings and 2½ percent in Consumer Price Index and somewhat higher increases before 1977. Does not include any factor for contingency margin.<sup>2</sup> The "demographic index" is computed as the number of beneficiaries in the middle of the year per hundred covered workers in the year adjusted to take into account the different amounts of average benefits that were in current-payment status on Jan. 31, 1973 as compared to the average old-age benefits.<sup>3</sup> Computed as the ratio of the "current cost" ratio in the second column to the "demographic index" ratio in the fourth column. The values in this column provide an approximate measure of the lag in the increases in average benefits (for all types of beneficiaries combined) as compared with increases in average earnings that are assumed in the cost estimate.

The automatic adjustment provisions in present law provide only for automatic increases in benefits to reflect changes in the CPI. These automatic benefit increases alone are not likely to be enough to prevent a deterioration in the benefits/earnings ratio. Congress has the option of preventing such deterioration by enacting benefit increases beyond these automatics, but except for the three-eighths of 1 percent margin, additional financing would be needed.

## (1) AVERAGE BENEFITS

The average awarded benefits for retired workers were projected by computer simulation of the automatic provisions for workers at various earnings levels under the specific assumptions regarding the increases in earnings and CPI. The average benefits in current-payment status were then obtained by weighting the awarded benefits according to values obtained from recent actual experience after allowing for the effect of projected CPI adjustments.

Appendix table D shows the projected awarded benefits at retirement, the projected average retirement benefits in current-payment status, and their projected increases as compared to increases in average earnings based on the assumed ultimate annual increases of 5 percent in earnings and 2¾ percent in Consumer Price Index with higher increases in years before 1977.

APPENDIX TABLE D.—PROJECTED INCREASES IN AVERAGE RETIREMENT BENEFITS AT AWARD AND IN CURRENT-PAYMENT STATUS AS COMPARED WITH PROJECTED INCREASES IN AVERAGE COVERED EARNINGS, DYNAMIC ASSUMPTIONS<sup>1</sup>

Calendar year	Average annual retirement benefit		Ratio of increase in retirement benefits to increase in earnings	
	Awards	In current-payment	Awards	In current-payment
1973	\$2,116	\$1,961	1.000	1.000
1980	3,149	2,676	1.025	.940
1985	3,983	3,404	1.016	.937
1990	5,008	4,336	1.001	.935
1995	6,308	5,486	.988	.927
2000	8,172	6,964	1.003	.922
2005	10,710	8,948	1.030	.928
2010	13,863	11,603	1.044	.943
2015	17,889	15,028	1.056	.957
2020	22,808	19,362	1.056	.967
2025	29,144	24,840	1.056	.971
2030	37,302	31,798	1.059	.974
2035	47,784	40,696	1.063	.977
2040	61,243	52,105	1.067	.980
2045	78,504	66,775	1.072	.984

<sup>1</sup> Based on annual ultimate increases in average earnings of 5 percent and in Consumer Price Index, of 2¾ percent and somewhat higher increases before 1977. All extensions in the benefit table are on the basis of a 20-percent factor.

Note: The last two columns in this table are conceptually similar to the last column in appendix table C. However, while the values in that table pertain to all beneficiaries and in addition, include the effect of the administrative expenses, the railroad interchange, and the needed accumulation of funds to maintain one year's benefit on hand, those in this table refer only to benefits payable to retired workers. The columns under the heading "In current-payment" refer to the average benefits for all retired workers who are receiving benefits, while the column under the heading "Awards" refer to the average benefits for those workers retiring in the particular year.

As will be observed from the last two columns in the table, the average awarded retirement benefits would increase at about the same rate as average earnings through the year 2000. The average retirement benefits in current-payment status would increase at a rate substantially lower than average earnings. After the turn of the century, both would tend to increase faster than average earnings. We must emphasize that these projections are based on ultimate annual increases in average earnings of 5 percent and in the Consumer Price Index of 2¾ percent and that the extensions of the benefit table are assumed to be on the basis of a 20 percent benefit factor. If these assumptions were modified, the projection would be different in absolute terms. However, the relative trough around the turn of the century would still be there since it is associated with the procedure used for calculating the average monthly wage of retiring workers, rather than with the economic assumption or with the formula underlying the benefit table.

Under the present law, workers attaining age 65 in 1973 have their average monthly wage computed over a period of 17 years for males and 14 years for females. These computation periods are required by law to increase by one year for each year elapsed until a maximum is reached in the year 1994, and after which they will remain unchanged. However, due to the amendments enacted in 1972, the computation period does not increase for male workers attaining age 65 in the years 1976-78.

The results in appendix table D indicate that the dual type of increments to which potential retirement benefits are subject under the present automatic provisions (increases due to higher creditable earnings as well as increases due to CPI benefit adjustments) would be higher than the increases in average earnings after 1993, but that before that year the present procedure of extending the computation period would offset enough of the dual increments to produce potential retirement benefits that increase at about the same rate as average earnings.

#### (2) TOTAL BENEFIT PAYMENTS

Total benefit payments were calculated as the product of the number of beneficiaries by their corresponding average benefits. These values were adjusted to reflect retroactive payments.

#### (3) ADMINISTRATIVE EXPENSES

On the basis of recent experience and expected operations, it was assumed that future administrative expenses would be 1.8 percent of benefit payments for OASI and 5.0 percent of benefit payments for DI.

#### (4) RAILROAD RETIREMENT FINANCIAL INTERCHANGE

The effect of the financial interchange was evaluated on the basis of trends similar to those used for the OASDI direct cost. This results in a long-range loss to the OASDI system.

#### (5) INTEREST RATE

Interest rate was assumed at 6 percent per year. This rate was adopted as a reflection of the assumed ultimate CPI increment of  $2\frac{3}{4}$  percent. It is believed that a differential or "true interest" rate of  $3\frac{1}{4}$  percent is reasonable.

The effect of a different interest rate would be minor since the system is evaluated on a "current-cost" basis with only a 1-year fund on hand. This 6 percent interest assumption was retained for all estimates and projections.

#### (6) SENSITIVITY TO ECONOMIC ASSUMPTIONS

The cost projections presented above have been based on ultimate annual increases in earnings of 5 percent and in Consumer Price Index of  $2\frac{3}{4}$  percent. It has been indicated that other sets of economic assumptions would yield different results. In this subparagraph, we present a brief analysis of the sensitivity of the cost projections to changes in the economic assumptions. No claim is made about the internal consistency within each one of these sets of economic assumptions, when viewed in terms of today's national economy or of a possible long-range projection of that economy. The sets were selected around a central set of projected ultimate increases in average earnings, CPI, and implied increases in real earnings of 5 percent,  $2\frac{3}{4}$  percent, and  $2\frac{1}{4}$  percent, respectively, in order to offer an idea of how each one of these elements affects the cost projections.

All variations in the economic assumptions were taken on the order of one-half of 1 percent. This was not intended to represent the possible outside range of variation in the assumptions. It only represents a convenient uniform way of testing the sensitivity of the cost projections.

Appendix table E presents the results of this sensitivity test. In calculating the values shown, all assumptions, formulae, and procedures used were the same for all sets except for those specific assumptions that are shown to have been varied. In addition, the higher earnings and CPI values before 1977 were adjusted to produce a smooth transition from the 1974 value to the specific ultimate value. In all cases, a three-eighths of 1 percent contingency margin was added for all years up to the year 2010.

The first column in the table shows the projected "current-cost" under the central assumptions. The projection is identical to the one presented in table 18 in the main body of this Report. It is included in this table in order to facilitate visual comparisons with other projections in assessing the sensitivity of the projections to the assumptions. Under the central assumptions, the average "current-cost" of the OASDI system is estimated at 10.95 percent of taxable payroll.

It should be observed that the overall projected "current-cost" is measured in this table in terms of the arithmetic average of "current-cost" for each of the 75 years in the valuation period.

APPENDIX TABLE E.—PROJECTED "CURRENT COST"<sup>1</sup> OF OLD-AGE, SURVIVORS, AND DISABILITY INSURANCE SYSTEM AS PERCENT OF PAYROLL,<sup>2</sup> UNDER VARIOUS DYNAMIC ASSUMPTIONS, FOR SELECTED YEARS, 1973-2045

[In percent]

Calendar year	Dynamic economic assumption <sup>3</sup>						
	5.00-2.75	5.00-2.25	5.00-3.25	5.50-2.75	4.50-2.75	5.50-3.25	4.50-2.25
1973.....	9.73	9.73	9.73	9.73	9.73	9.73	9.73
1980.....	9.82	9.64	10.07	9.63	9.97	9.81	9.83
1985.....	9.85	9.42	10.34	9.41	10.23	9.88	9.83
1990.....	9.97	9.32	10.72	9.34	10.54	10.05	9.90
1995.....	9.76	8.90	10.74	8.99	10.52	9.89	9.64
2000.....	9.54	8.49	10.76	8.66	10.46	9.75	9.37
2005.....	9.65	8.39	11.14	8.63	10.74	9.96	9.37
2010.....	10.26	8.72	12.11	9.07	11.57	10.70	9.87
2015.....	10.98	9.14	13.23	9.58	12.54	11.53	10.47
2020.....	11.77	9.61	13.47	10.16	13.61	12.46	11.14
2025.....	12.50	10.02	15.63	10.68	14.61	13.32	11.72
2030.....	12.46	9.84	15.85	10.56	14.70	13.38	11.59
2035.....	12.45	9.68	16.07	10.50	14.81	13.46	11.48
2040.....	12.50	9.60	16.36	10.48	14.96	13.61	11.43
2045.....	12.63	9.59	16.78	10.53	15.25	13.85	11.49
Average cost <sup>4</sup> .....	10.95	9.36	12.94	9.75	12.31	11.45	10.49

<sup>1</sup> Represents the cost as percent of payroll of the year's total outgo, including amounts needed to maintain the funds at about 1 year's outgo.

<sup>2</sup> Payroll is adjusted to take into account the lower contribution rate on self-employment income, on tips, and on multiple-employer "excess wages" as compared with the combined employer-employee rate.

<sup>3</sup> The first of the two figures represents the assumed ultimate annual percent increase in earnings after 1976, while the 2d figure represents the assumed ultimate increase in CPI. In all cases, a 3/8 of 1 percent contingency margin is included for years up to 2010.

<sup>4</sup> Represents the arithmetic average of the "current cost" for the 75-year period 1973-2047.

The second and third columns in appendix table E present the projected "current-cost" on the assumptions that increases in earnings would remain at the same ultimate 5 percent level as in the central set, but that CPI would be one-half of 1 percent lower or higher than in the central set. These results could also be interpreted as being based on a one-half of 1 percent variation on the projected gain in real earnings wherein the whole variation is reflected in a change in CPI. The projections indicate that a one-half of 1 percent variation in CPI would change the average cost by about 15-18 percent, relatively.

The fourth and fifth columns present the projected "current-cost" on the assumptions that the ultimate CPI increase would remain at the 2¾ percent level used in the central set, but that the ultimate increases in earnings would be one-half of 1 percent lower or higher than in the central set. These results could also be interpreted as being based on a one-half of 1 percent variation on the projected gain in real earnings wherein the whole variation is reflected in a change in earnings. These projections indicate that a one-half of 1 percent variation in earnings would change the average cost by about 11-12 percent, relatively.

A significant fact to be noted is that the second column and the fourth column are based on the same projected gain in real earnings (2¾ percent), but that the projected average costs are different. A similar observation could be made on the basis of the third and fifth columns. This means that even though two projections could be based on the same gain in real earnings, the projected cost of the OASDI system would be affected by the level of CPI increases. We could also interpret the results to mean that everything being equal, the cost of the OASDI system will depend on the level of inflation, with the cost being lower if inflation is kept at low levels.

The same effect can be observed by comparing the first, sixth, and seventh columns. In this case, the real earnings gains are assumed at 2¾ percent. As will be noted, the average cost of the OASDI system increases by 4 to 4½ percent, relatively, for every one-half of 1 percent increase in CPI and earnings.

In general, this sensitivity analysis indicates that the effect of variations in the economic assumptions is relatively small in the early years, but that it becomes progressively more significant as we move into later years.

## (7) THE CENTRAL SET OF ECONOMIC ASSUMPTIONS

The central set of economic assumptions was selected on the basis of the average gain in real earnings of  $2\frac{1}{4}$  percent that has been observed over the last 20 years. To this was added an increase in CPI assumption of  $2\frac{3}{4}$  percent to yield an assumption of a total increase in average earnings of 5 percent. Both the CPI assumption ( $2\frac{3}{4}$  percent) and the average earnings assumption (5 percent) are approximately one-half percent higher than the experience of the last 20 years. These assumptions are presented in this appendix to obtain an idea of possible trends in the future OASDI cost. They are not intended to be a prediction of what should be expected over the next 75 years.

